

October 29<sup>th</sup> 2018 Sturgeon Management Plan Meeting  
Portage Library Steven's Point, WI

**\*Next meeting Tuesday Dec 4<sup>th</sup> back at the Portage County Annex from 1-4 pm.**

Action Item: Add presentations on genetics and exploitation to the Sturgeon Management Plan website.

Action Item: Committee Members please review Sections 5 (Public outreach and participation), 6 (Emerging threats), and 7 (Commercialization for scientific use) for the breakout sessions planned for the next meeting on December 4<sup>th</sup>.

Ryan Koenigs began the meeting. He went over the next meeting schedule, contact information and website information that has been presented at the previous meetings. Ryan went over the agenda for today's meeting.

A management plan draft outline from last months' breakout sessions was emailed out to the group on 10/19/2018. A hard copy of the section 1 and 2 outlines was passed out to everyone at the meeting. Ryan then reviewed the Management Plan sections again for everyone reiterating the sections planned for today (sections 3 and 4) and for the next meeting on December 4<sup>th</sup> (sections 5 Public outreach and participation, 6 Emerging threats, and 7 Commercialization for scientific use). **Ryan asked the group for input (i.e., questions, comments, concerns) from anyone on the committee about the last meeting, breakout sessions or the outline that was put together for sections 1 and 2? No one from the group had any comments at this time.** Ryan reiterated that this is not a final copy, more detail will be added and comments can be made to the WDNR for adjustment in the future. The section outlines are objectives and tactics and more detail will be added in the future (**J. Gerbyshak comment and addressed by Ryan for clarification**).

Dr. Wes Larson gave a presentation "How genetics can be used to help manage sturgeon populations" The presentation will be made available through the Sturgeon Management webpage on the DNR website. The portfolio effect of economics (diversity of investments has a positive influence) also applies to diversity in fisheries. Wes gave an example of genetically diverse Salmon stocks in Bristol Bay (Alaska) where there are many different locally adapted stocks that behave differently which allows for a relatively stable number of total salmon over time. When the numbers of one or more stocks are low that is offset by other stocks that are high. Compared to the Sacramento River (California) salmon stocks that are more genetically similar. There were once many genetically diverse stocks in this area, but only a few hatchery stocks now currently exist. Thus, salmon in rivers that are a couple hundred kilometers apart have become almost identical genetically which would not have been the case naturally. As a result, there has been a salmon fishery crash in this area of California. The "autopsy" of the event showed that the result of having a few genetic strains which behaved similarly contributed to population failures when conditions for recruitment in the region were poor. Since the stocks were almost genetically identical they all were unable to handle the poor conditions and died. It is likely that if the stocks had been more genetically diverse, as is the case in Alaska and would have been the case in California prior to the given stocking regime, some salmon populations may have crashed under the poor conditions but others would likely have been adapted to survive those conditions avoiding a crash of the entire salmon fishery in the area. The takeaways of the salmon story: **1)** Genetic diversity levels are strongly correlated to a populations ability to adapt. **2)** Persistence/sustainability depends on genetic diversity or components of genetic diversity.

Wes also presented a baseline of what is known about lake sturgeon genetics in Wisconsin. **A couple main points:** **A)** Lake sturgeon in Green Bay tributaries are all genetically distinct (DeHaan et al. 2006). **B)** Lake Superior populations were distinct from Green Bay tributaries. **C)** The primary genetic break in Wisconsin lake sturgeon occurs between the Great Lakes tributaries and the Mississippi tributaries. **D)** Within the inland groups (Mississippi tributaries) there isn't a huge differentiation in genetic structure. **E)** In general, the genetic diversity in Wisconsin lake sturgeon populations is pretty good across the state. There is little indication of negative genetic issues such as inbreeding or outbreeding depression, etc.

**Summary slide / takeaways:** There are two major genetic groups for lake sturgeon in the state of Wisconsin - Great Lakes and inland (Mississippi River). There is relatively high differentiation in genetic structure in the Great Lakes populations especially within Green Bay. There is lower genetic structure in the inland populations (Mississippi River tributaries). Genetic structure is relatively diverse across populations, with no major red flag populations. **Current analysis is ongoing on for the Yellow River and St. Croix populations. Those results should be available in the near future.**

**Question from Jeff Schierer: Clarification of the meaning of outbreeding depression (and Rob Elliot).**  
**Wes' response: Outbreeding depression occurs when one population overtakes another swamping out the genetics of the depressed population. An example would be the hybrid vigor that has been observed in some sunfish species where the first hybrid population depresses the original species populations.**

**Question from Ryan Koenigs: What do we know about Lake Sturgeon genetics in Lake Superior and comparatively to genetic strains from the Green Bay populations.** **Wes's response: The Lake Superior populations (the Bad River and the Sturgeon River) are genetically distinct from the Lake Michigan populations.**

Breakout Session #1: Propagation and Reintroduction.

Jesse Landwehr gave a brief overview of the primary locations that have been stocked with lake sturgeon and the brood sources used. He mentioned that these waters will periodically not be stocked in order to evaluate the results of the stocking programs. An example would be the Menominee River. The Yellow River and the Wisconsin River are the main brood sources for stocking other Mississippi tributaries. Streamside facilities for Lake Michigan located on the Kewaunee and Milwaukee Rivers have utilized Wolf River strain Lake Sturgeon. Fish stocked in Lake Michigan are raised in streamside rearing facilities in efforts to better facilitate imprinting. There are plans in the works to renew Lake Sturgeon stocking in the St. Louis River. The Sturgeon River has been identified as the preferred brood source for restoration. Stocked fingerling lake sturgeon are about 6-8 inches and yearlings 12-16 inches when stocked.

Ryan Koenigs mentioned that as a state we try to use the most genetically appropriate brood source. We do have other tools to reintroduce or expand the range of lake sturgeon such as, barrier removal or mitigation around barriers, capture and transfer. These techniques have been successful on the Wolf River and the Menominee.

Jeff Scheirer mentioned that the barrier removal on the Couderay River has been successful. After barrier removal lake sturgeon naturally recolonized the area without any stocking. Also, a nature like

fishway was installed (around a dam on the Chippewa River) that has facilitated recolonization of 85 miles of the East Fork of the Chippewa river upstream of that dam.

Ryan Koenigs gave an overview of the objectives from this section in the original 2000 Management Plan for review during the breakout session.

10 min Break.

Breakout Session #1: Section 3: Propagation and Reintroduction.

**Group 1:**

- 1) Identify key river sections for reintroduction and expansion
  - Identify most appropriate methods, i.e., stocking, barrier removal or trap and transfer, fish ladders/passage methods
  - prioritize river sections based on habitat availability and river miles
  - develop funding sources to accomplish goals
  - evaluate feasibility of methods, e.g., cost to benefit ratio
- 2) Continue to monitor genetic diversity
  - evaluate potential drift or change in genetic composition of wild populations over time
  - monitor diversity of hatchery products over time
- 3) Define and maintain genetically appropriate brood stocks
- 4) Evaluate genetic diversity of shovelnose sturgeon
- 5) Ensure watershed wide coordination for propagation and expansion

**Group 2:**

- 1) Continue to define existing strains:
  - Collect genetic information from select populations
  - Delineate sturgeon genetic geographic units
- 2) Prioritize sturgeon reintroduction waters
  - Create a ranking protocol for stocking including fish transfers
- 3) Maintain statewide commitment to the sturgeon stocking program
  - maintain funding
  - seek to increase funding or find alternate sources
- 4) Pursue alternate rearing techniques besides traditional hatchery products
  - SRFs (streamside rearing facilities)
- 5) Evaluate reintroduction programs
  - assessment should be part of the overall rehabilitation plan
  - a 25 year plan / number per mile stocked should be a tactic

**Group 3:**

- 1) Continue to refine our knowledge of existing genetic strains.
  - focus more effort on SNS (shovelnose sturgeon) a current data gap
- 2) Ensure stockings follow appropriate genetic guidelines
  - develop detailed guidance/protocol
- 3) Ensure reintroductions to minimize risk of spreading invasive species and/or pathogens
- 4) Develop protocols for streamside rearing facilities

- 5) Evaluate success/failure of streamside facilities currently in use
- 6) Use population genetics information to inform stocking strategies
- 7) Assess feasibility of SNS propagation or fish transfer
- 8) Continue to refine techniques for field collection of eggs and milt – field propagation
  - maximize diversity within collection periods and year to year
- 9) Monitor/re-evaluate genetics for each population
  - every 10 years
- 10) Evaluate best product: fall fingerling, fry, yearling, small fingerling
- 11) Evaluate best stocking location – offshore, nearshore, etc.

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Breakout Session #2: Regulations, harvest, and law enforcement.

Stephanie Shaw gave a presentation on exploitation. The information presented was an overview of Section 4.0 (Harvest and Fisheries Information Needs) of the 2000 Management Plan and review document. The review document with more detailed information can be found on the Sturgeon Management Plan website at the following link:

<https://dnr.wi.gov/topic/fishing/documents/sturgeon/2000PlanReview.pdf>

**Summary points / takeaways:** **1)** Exploitation is a measure of the number of fish harvested compared to the population abundance. It gives biologists a measure of the impact of harvest relative to the population and is comparable among populations. **2)** There are standardized measures of exploitation that the state uses. Lake sturgeon populations have relatively good estimates of total harvest given the harvest tag system and mandatory reporting. Less is known about the shovelnose fishery. **3)** Length based regulations (minimum length limits) have been most effective when coupled with regulations that reduce harvest such as decreasing bag limits or reducing season length. **4)** Commercial bycatch and catch-and-release/hooks mortality can cause unwanted mortality in sturgeon populations. Commercial bycatch for lake sturgeon does occur. Some observational studies suggest that it is relatively low compared to other species and mortality is rare. However, commercial bycatch is not regularly monitored and there are no requirements to report bycatch or mortality of lake sturgeon. **5)** Catch-and-release mortality is believed to be low based on studies of other species (i.e., white sturgeon in the Pacific northwest). However, it has never been formally evaluated for lake sturgeon (or shovelnose). A WDNR study is planned to take place in 2019 evaluating the stress response of angling on lake sturgeon and mortality as a result of angling in different lake sturgeon populations throughout the state. **6)** Lake sturgeon are known to concentrate in small areas (e.g., pools of rivers, below dams) where they can become highly vulnerable to angling pressure. Heavy angling pressure in these areas could produce high mortality on specific populations. Refuges have been established on the Chippewa and Flambeau Rivers as well as a catch-and-release only section on the Menominee River below the Grand Rapids Dam.

**Question from Josh Schloesser on exploitation rates for sturgeon in the state. Ryan Koenigs response was that the Winnebago system is the only system that is managed with a quota based on the 5% exploitation rate. There are only a couple systems with good population estimates that make the use of the 5% exploitation rate feasible for management.**

**Question from Bryan Klawitter on the hooking mortality study and why it wasn't being conducted anywhere near his area (St. Croix River) and who would be doing the angling? Steph Shaw response was that the study plans for 2019 are to be considered an initial investigation that was designed to optimize logistics and cost as much as possible and areas were chosen based on biologist recommendations. The study could be continued in other areas in the future. WDNR biologists would be the primary people conducting the study and doing the angling. The opportunity exists in some study areas to involve recreational anglers and that option is being considered.**

**Question from Jen Reitz: Is there any place that sturgeon regulations are consolidated in the reg handbook or online? Answer (Ryan Koenigs): Sturgeon regulation information is currently organized by waterbody which is the standard presentation of regulation information. It would be useful to develop a centralized location online or in the regulations for all sturgeon regulation and harvest information. This would be a good inclusion in the Management Plan for the Public Outreach and Participation section.**

**Mentioned that proper handling of Lake Sturgeon can facilitate lower mortality. Dave Hitchcock added that use of circle hooks prevents fish from swallowing the hook. As an aside, the DNR will be working on a document promoting best handling practices for catch and release fishing. The Sturgeon Team plans to have a sturgeon specific guidance document available prior to the 2019 hook and line fishery.**

Breakout Session #2: Regulations, harvest, and law enforcement.

**Group 1:**

- 1) Promote best handling practices and angler education
- 2) 8 month catch-and-release season – expand the hook-and-line opportunities
  - keep harvest season the same
- 3) Standardize season length
- 4) Purchase a tag 'x' number of days prior to harvesting fish
- 5) Sturgeon stamp for catch-and-release
  - Money earmarked for sturgeon management
- 6) Increase law enforcement during sturgeon season
- 7) Monitor bycatch from commercial fishing
- 8) Increase non-resident license harvest price
- 9) Allow hook-and-line while sturgeon spearing
- 10) Standardize regulations statewide
- 11) Promote greater protection of fish during critical times
  - Standardize refuge timing/spawning locations
- 12) Standardize equipment use during hook-and-line and spearing
- 13) Keep 60 inch minimum size limit or increase if biologically needed

**Group 2:**

- 1) Calculate exploitation rates for sturgeon populations
- 2) Continue to evaluate 60 inch minimum length limit

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- Analyze by water body
- 3) Investigate increasing the season length
  - Catch-and-release season in October
  - Seasonality of catch – August or October
  - Extend the harvest season
  - Geographic variability
- 4) Collect information from anglers at the time of license purchase
- 5) Create/investigate a lottery system for the hook-and-line season (quota system)
- 6) Create/expand the sturgeon guard system in other areas
- 7) Ensure adequate law enforcement presence during critical times (spawning)
- 8) Create hook-and-line regulations for outreach similar to the Winnebago system
  - pamphlet
- 9) Establish a quota for commercial shovelnose harvest based on an appropriate exploitation rate
- 10) Maintain mandatory registration and registration stations
  - continue current methods of registration of harvested fish

**Group 3:**

- 1) Evaluate the possibilities for expansion of catch-and-release fishing or harvest seasons or shift the current season
  - population data and input from law enforcement
- 2) Evaluate SNS populations and determine if harvest or catch-and-release opportunities may be expanded or if additional protection is warranted
  - population data and input from law enforcement
- 3) Continue to develop and implement standardized catch/harvest assessments that include measurement of exploitation, effort, etc.
  - continue 4.1.A from the 2000 Management Plan: "Develop standardized catch/harvest assessment techniques that include a measure of exploitation, effort, and age, size, and sex of fish"
- 4) Assess natural mortality in sturgeon populations
- 5) Continue 4.1.C – "Continue Winnebago spearing assessment"
- 6) Continue 4.1.D – "Examine impact of regulations (length limits, season, etc.) on spearing and hook and line fisheries"
- 7) Continue 4.1.F – hooking mortality ongoing "Determine hooking mortality of sturgeon"
- 8) Evaluate implications of changes to policies/rules on harvest tagging and type of tag
  - plastic versus paper
- 9) Determine if additional refuges or closures are warranted to protect vulnerable concentrations of fish
- 10) Develop estimates of SNS (shovelnose sturgeon) catch, harvest, and exploitation in populations open to fishing
  - commercial and sport
  - creel
- 11) Explore regulation change to compel commercial fishers to allow more stringent monitoring of catch, sturgeon harvest, incidental catch and mortality
  - onboard reporting
- 12) Establish standardized method for measuring sturgeon
  - side versus belly

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- expand public awareness of proper methods
- 13) 6.1, 6.2, and 6.3 from 2000 Management Plan still apply
- 6.1 Manage average annual exploitation of populations at or near 5%
  - 6.2 Maintain strong enforcement of sturgeon populations at all times
  - 6.3 Protect remnant and rehabilitating sturgeon populations
- 14) Evaluate stakeholder inquiries on new or expanded sturgeon fishing opportunities on a case by case basis
- 15) Section 4... Publish annual report on sturgeon fishing harvest with summaries for all populations – commercial and sport
- 16) Explore creation of hook-and-line and catch-and-release license or sturgeon stamp to increase funding for sturgeon management
- consult with law enforcement
  - method of tracking interest in sturgeon fishing as some fisheries move forward
  - catch-and-release practice
- 17) continue 6.D – "Evaluate current minimum length limits and expand harvest assessment to make recommendations by 2002"